

REMARKS / DISCUSSION OF ISSUES

Claims 1-12 are pending in the application.

The following remarks are being filed in response to the Final Office Action mailed on August 23, 2006, which has been reviewed and carefully considered. Reconsideration and allowance of the present application in view of the amendments made above and the remarks to follow are respectfully requested.

In the Office Action, claims 1-7 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 5,585,801 (Thurston) in view of U.S. Patent No. 5,243,345 (Naus). It is respectfully submitted that claims 1-7 are patentable over Thurston and Naus for at least the following reasons.

Thurston is directed to a sigma-delta converter/modulator having a limiter 7. As correctly noted by the Examiner on page 2, last paragraph of the Office Action, the Thurston limiter 7 “does not specifically teach an amplifier that controls a weight associated with the output of each of the filters.” (Office Action, page 2, last paragraph) Naus is cited to remedy this deficiency in Thurston.

Naus is directed to a sigma-delta modulator comprising a series combination of N first-order integrating sections 6.1...6.N each having an integrator 12.2...21.N and a limiter 14.1...14.N. As clearly shown in FIGs 1-2, each output of the integrating sections 6.1...6.N is connected to a separate respective amplifier 16.1...16.N. Thus, the combination of Thurston and Naus, assuming arguendo that such a combination is proper, at best would teach or suggest providing an amplifier to each output of the Thurston filters 4, 6, resulting in two amplifiers feeding signals to the adder 12.

In stark contrast, the present invention as recited in independent claim 1, and similarly recited in independent claim 4, amongst other patentable elements, requires (illustrative emphasis provided):

an adder connected to an output of the amplifier and a filter output of the second filter for adding the output and the filtered output to form a weighted output.

Instead of an adder connected to the filter output of the second filter, or adding the filter output of the second filter, the combination of Thurston and Naus would at best teach or suggest adding amplified outputs from two amplifiers. It is respectfully submitted that an adder connected to the filter output of the second filter, or adding the filter output of the second filter, as recited in independent claims 1 and 4, is nowhere taught or suggested in Thurston, Naus, and combination thereof. Accordingly, it is respectfully submitted that independent claims 1 and 4 should be allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 2-3 and 5-7 should also be allowed at least based on their dependence from independent claims 1 and 4.

It is respectfully submitted that independent claims 8 and 10 are also patentable since Thurston and Naus, alone or in combination, do not teach or suggest:

- a modulator configured to receive a first difference signal and output a modulated signal;
- a first subtractor configured to subtract the modulated signal from an input signal to form a second difference signal;
- a quantizer configured to quantize the second difference signal and form a quantized output; and
- a second subtractor configured to subtract the second difference signal from the quantized output to form the first difference signal,

as recited in independent claims 8, or


- a first modulator configured to receive an input signal and output a first modulated signal;
- a first subtractor configured to subtract the first modulated signal from the input signal to form a first difference signal;
- a filter configured to receive the first difference signal and output a filtered signal;
- a delay circuit configured to delay the input signal and output a delayed signal;
- an adder configured to add the delayed signal and the filtered signal to form a combined signal; and
- a second modulator configured to modulate the combined signal,

as recited in independent claims 10. Accordingly, it is respectfully submitted that independent claims 8 and 10 should be allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 9 and 11-12 should also be allowed at least based on their dependence from independent claims 8 and 10.

In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

In view of the foregoing, applicant respectfully requests that the Examiner withdraw the rejections of record, allow all the pending claims, and find the application in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

  
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November 9, 2006

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